

LEPADOMORPH CIRRIPEDS FROM THE BRAZILIAN COAST.
I.—FAMILIES LEPADIDAE, POECILASMATIDAE
AND HETERALEPADIDAE

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ABSTRACT

This study presents the lepadomorph cirripeds of the families Lepadidae, Poecilasmataidae and Heteralepadidae from the Brazilian coast. Eleven species are cited, two being new occurrences and one a new species of the genus *Paralepas*.

The cirripedian species from the Brazilian coast are little known. Only occasional papers cite the occurrence of these species. This study intends to review the species composition and determine their distribution range along the Brazilian coast. This is the first paper of a series and it deals with the lepadomorphs (except Scalpellidae), presenting their synonymy, redescription and distribution when necessary. The terminology used herein was based on Newman and Ross (1971) and Henry and McLaughlin (1975). The abbreviations cited in the present paper are: UFPB—Universidade Federal da Paraíba; MZUSP—Museu de Zoologia da Universidade de São Paulo; MZB—Museu Zoobotânico do Rio Grande do Sul; ?—indicates a locality referred only to a state.

SUBCLASS CIRRIPIEDIA BURMEISTER, 1834

Order Thoracica Darwin, 1854

Suborder Lepadomorpha Pilsbry, 1916

Family Lepadidae Darwin, 1851

Genus *Lepas* Linnaeus, 1758

Subgenus *Lepas* Linnaeus, 1758

The genus *Lepas* is divided into three subgenera, *Lepas*, *Hyalolepas* and *Non-furcata*; only the former species occurs in the Atlantic. The nominotypical subgenus comprises species commonly found attached to floating substrates. It is characterized by the carina structure, which has a short fork at its base. Zevina (1982) erroneously enclosed the species herein considered, including the type species, in the subgenus *Anatifa*, which is synonymous with *Lepas*.

Lepas (Lepas) anatifera Linnaeus, 1758

Figure 1a-c

Synonymy.—Weisbord, 1979: 13.

Description and Diagnosis.—Darwin, 1851: 73; Pilsbry, 1907: 79.

Examined Material.—PARAÍBA. Cabedelo, UFPB 3328. João Pessoa, UFPB 170, 179. BAHIA. Itaparica, MZUSP 3332. ESPÍRITO SANTO. Aracruz, MZUSP 7623. RIO DE JANEIRO. Cabo Frio, MZUSP 7606. Rio de Janeiro, MZUSP 7611-7613. Mangaratiba, MZUSP 7621. SÃO PAULO. São Sebastião, MZUSP 7618, 7640, 7642. Guarujá, MZUSP 7601. SANTA CATARINA. Florianópolis, MZUSP 7546, 7552. RIO GRANDE DO SUL. Torres, MZUSP 7589, MZB 296, 315, 320. Capão da Canoa, MZUSP 7583, 7591, MZB unnumb. Tramandaí, MZUSP 7576-7578, 7580-7581, 7593, MZB unnumb. Paimares do Sul, MZUSP 7590, MZB unnumb. São José do Norte, MZUSP 7620. Rio Grande, MZUSP 8006, 8017. ?, MZUSP 7597, MZB 1235.

Geographic Distribution.—Cosmopolitan, found in tropical and temperate seas. In western South Atlantic: Brazil - Paraíba, Bahia to Rio Grande do Sul - and

Argentina - Buenos Aires and Tierra del Fuego (Weltner, 1897; Lahille, 1910; Luederwaldt, 1929; Oliveira, 1940; Newman and Ross, 1971; Weisbord, 1979).

Habitat. — Commonly attached to floating objects, such as wood, roots and bottles.

Remarks. — In the samples studied, this species was often associated with *Lepas anserifera* and rarely with *L. pectinata* and *Dosima fascicularis*. Furthermore, *L. anatifera* always dominated the samples by having a larger number of specimens than the accompanying species. Most specimens had smooth valves (Fig. 1a); in only three samples (UFPB 3328, MZUSP 3332, 7621) did specimens with striated valves occur. All dissected specimens had an umbonal tooth in the right scutum (Fig. 1b), and two filamentary appendages, one at the posterior region of the base of cirrus I and the other lower on the body (Fig. 1c).

Lepas (Lepas) anserifera Linnaeus, 1767

Figure 1d-f

Synonymy. — Weisbord, 1979: 18.

Description and Diagnosis. — Darwin, 1851: 81; Pilsbry, 1907: 80.

Examined Material. — PARAÍBA. João Pessoa, UFPB 173-174, 3329. BAHIA. Conde, UFPB 3330. Salvador, UFPB 3331. ESPÍRITO SANTO. Aracruz, MZUSP 7604. RIO DE JANEIRO. Cabo Frio, MZUSP 7605, 7607-7609. Mangaratiba, MZUSP 7622. SÃO PAULO. São Sebastião, MZUSP 7614-7617, 7619, 7643. Bertioga, MZUSP 7644. Guarujá, MZUSP 7603. SANTA CATARINA. São Francisco do Sul, MZB 319. Florianópolis, MZUSP 7547, 7553. RIO GRANDE DO SUL. Capão da Canoa, MZUSP 7596, MZB unnumb. Tramandai, MZUSP 7579, 7582. Palmares do Sul, MZUSP 7599, MZB unnumb. Rio Grande, MZUSP 8007. ?, MZUSP 7598, MZB unnumb. URUGUAY. Rocha, MZUSP 7595, MZB 316.

Geographic Distribution. — Cosmopolitan, found in tropical and temperate seas (Weisbord, 1979; Zevina, 1982). In the western South Atlantic: Brazil—Rio de Janeiro and São Paulo (Weltner, 1897; Luederwaldt, 1929; Oliveira, 1940).

Habitat. — Commonly attached to floating objects, including petroleum pellets.

Remarks. — It is usually associated with *Lepas anatifera* and rarely with *L. pectinata* and *D. fascicularis*. *L. anserifera* is smaller than *L. anatifera*, its length never reaches more than 4 cm. Other differentiating characters: shell usually more globose than *L. anatifera* (Fig. 1d); valves with strong striations, especially on tergum (Fig. 1d, e); five filamentary appendages at base of cirrus I and one at the body (Fig. 1f).

Lepas (Lepas) hilli (Leach, 1818)

Synonymy. — Weisbord, 1979: 23.

Description and Diagnosis. — Darwin, 1851: 77; Pilsbry, 1907: 80.

Geographic Distribution. — Cosmopolitan, found in tropical and temperate seas (Weisbord, 1979; Zevina, 1982). In the western South Atlantic: Falkland Islands, Argentina - Off Tierra del Fuego - and Brazil—without detailed locality (Darwin, 1851; Lahille, 1910; Weisbord, 1979).

Habitat. — Commonly attached to floating objects, such as wood, and on pelagic animals, as turtles.

Remarks. — Usually associated with *Lepas anatifera* and *L. anserifera* (Weisbord, 1979). Despite *L. hilli* being considered a common species, it was not found in any sample examined during this study. The species is distinguished from *L.*

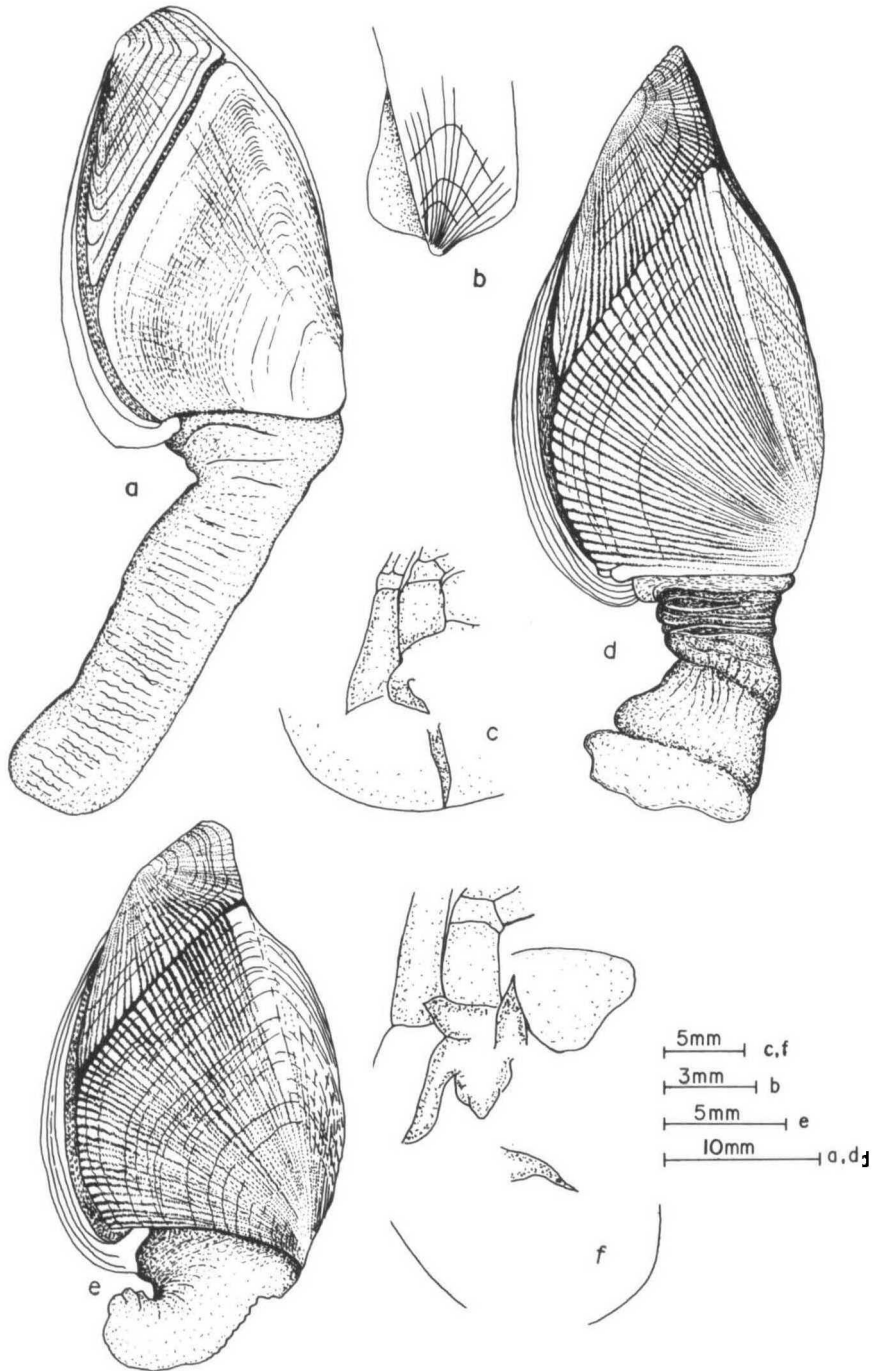


Figure 1. *Lepas anatifera* Linnaeus. MZUSP 7580: a—left lateral view; b—detail of the umbonal region of the right scutum; c—filamentary appendages on left side. *Lepas anserifera* Linnaeus. MZUSP 7614: d—left lateral view of a slender specimen; e—left lateral view of a globose specimen; f—filamentary appendages on left side.

anatifera by having smoother plates; three filamentary appendages and by the absence of an umbonal tooth inside the right scutum (Darwin, 1851; Pilsbry, 1907).

Lepas (Lepas) pectinata Spengler, 1792

Figure 2a, b

Synonymy.—Weisbord, 1979: 25.

Description and Diagnosis.—Darwin, 1851: 85; Pilsbry, 1907: 81; Weisbord, 1979: 26.

Examined Material.—SÃO PAULO. Guarujá, MZUSP 7602. RIO GRANDE DO SUL. Capão da Canoa, MZB unnumb. Palmares do Sul, MZUSP 7588, 7600, MZB unnumb.

Geographic Distribution.—Cosmopolitan, found in tropical and temperate seas (Weisbord, 1979; Zevina, 1982). In the western South Atlantic: Brazil—Off Penedos de São Paulo—and Argentina—Mouth of Rio de la Plata and Cabo de Hornos (Pilsbry, 1907; Weisbord, 1979).

Habitat.—Attached to floating objects as wood and root.

Remarks.—Despite being considered common, it was rarely found. It usually occurred associated with *Lepas anserifera* and rarely with *L. anatifera*. Short specimens of *L. pectinata* (<1.5 cm) were usually found attached between other species. The chief diagnostic character is the scutum apex being projected inside a fold of the tergum border (Fig. 2a). Moreover, the base of cirrus I may have one filamentary appendage (Fig. 2b) (Darwin, 1851; Pilsbry, 1907).

Genus *Dosima* Gray, 1825

The taxon *Dosima*, previously a subgenus of *Lepas*, has recently been given generic status (Zullo, 1979; Zevina, 1982). It comprises two Recent species: *D. fascicularis* (Ellis and Solander) and *D. gnamuthui* (Daniel). This genus is easily distinguished from *Lepas* s.s. by the presence of an angular carina with a central umbo and weakly calcified plates.

Dosima fascicularis (Ellis and Solander, 1786)

Figure 2c, d

Synonymy.—Weisbord, 1979: 28; Zevina, 1982: 21.

Description and Diagnosis.—Darwin, 1851: 92; Pilsbry, 1907: 81; Daniel, 1971: 85.

Examined Material.—RIO DE JANEIRO. Cabo Frio, MZUSP 7610. SÃO PAULO. Itanhaém, MZUSP 7641. SANTA CATARINA. Florianópolis, MZUSP 7545. RIO GRANDE DO SUL. ?, MZUSP 7594, MZB unnumb.

Geographic Distribution.—Cosmopolitan, found in tropical and temperate seas (Weisbord, 1979; Zevina, 1982). In the western South Atlantic: Brazil—Off Rio de Janeiro to Rio Grande do Sul—and Argentina—Tierra del Fuego (Newman and Ross, 1971; Weisbord, 1979).

Habitat.—Early in growth, this species is usually affixed to small floating substrata, as roots and feathers. Afterwards, it develops a float of its own at the base of the peduncle.

Remarks.—This species, although rare, was abundant when encountered, sometimes in association with *L. anserifera* and *L. anatifera*.

Plates weakly calcified, carina angular with rounded base (Fig. 2c). Presence of four filamentary appendages at base of cirrus I and one at the body (Fig. 2d) distinguishes this species from the only other in this genus.

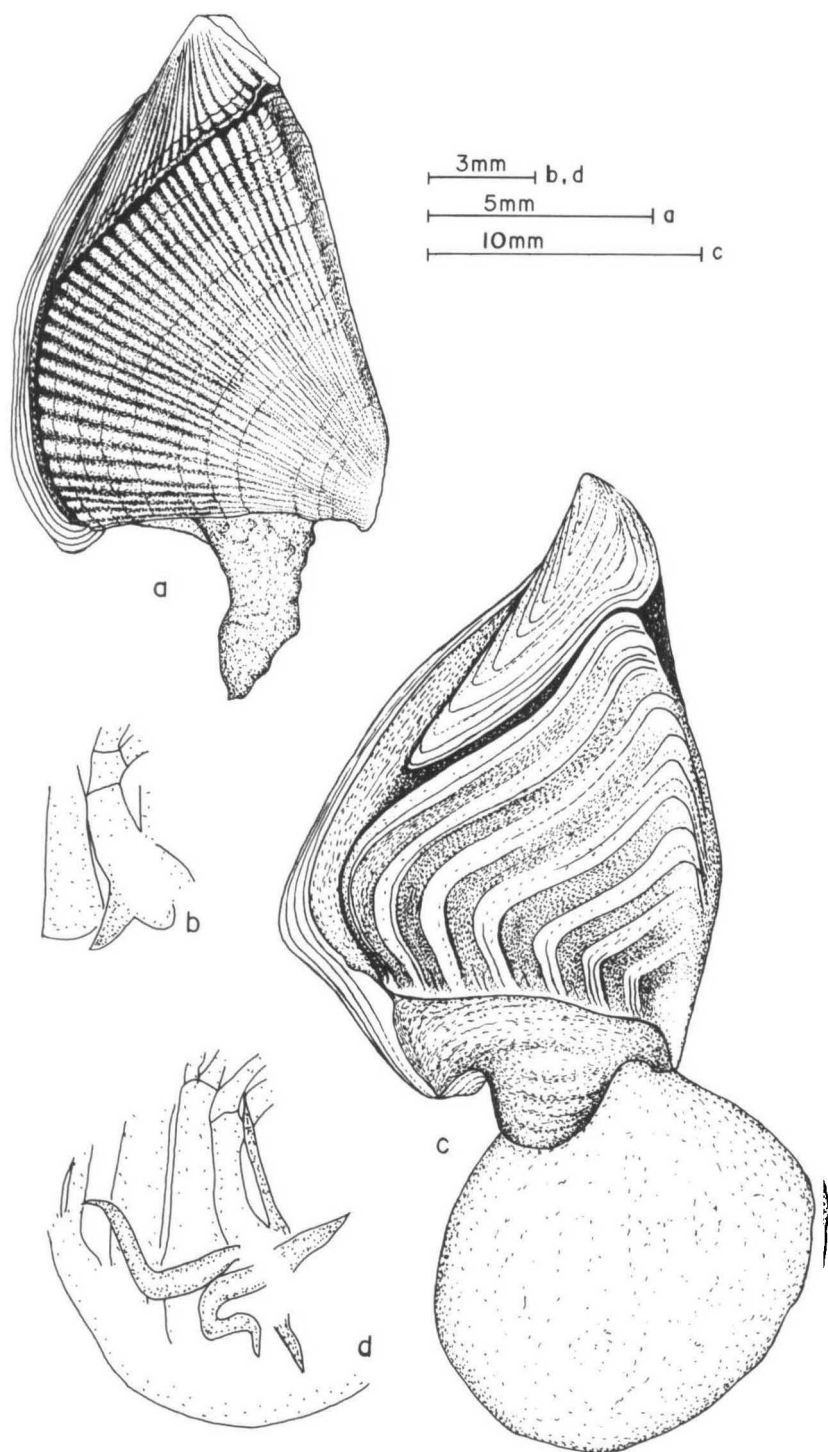


Figure 2. *Lepas pectinata* (Spengler). MZUSP 7600: a—left lateral view; b—filamentary appendages on left side. *Dosima fascicularis* (Ellis and Solander). MZUSP 7594: c—left lateral view; d—filamentary appendages on left side.

Genus *Alepas* Rang, 1829*Alepas* sp.

Darwin (1851) cited one species of this genus, found on a jellyfish at the Brazilian coast, but did not identify the species. Only two species associated with jellyfish are known to the Atlantic, viz. *A. univalvis* Quoy and Gaimard and *A. pellucida* (Aurivillius). They were found, respectively, in the Northern Sea and in the Mediterranean (Aurivillius, 1894; Zevina, 1982).

FAMILY POECILASMATIDAE ANNANDALE, 1909

Genus *Octolasmis* Gray, 1825*Octolasmis hoeki* (Stebbing, 1895)

Figure 3a-d

Synonymy.—Weisbord, 1979: 59; Zevina, 1982: 50.

Description and Diagnosis.—Stebbing, 1895: 18; Stubbings, 1967: 242.

Examined Material.—SÃO PAULO. Off Ubatuba, 35–38 m, in branchial chamber of *Libinia spinosa* H. Milne-Edwards, MZUSP 8136, 8141.

Geographic Distribution.—Eastern Atlantic: Cape Green Island and Ghana (Stubbings, 1964; 1967). Western Atlantic: EUA—South Carolina to Texas—, Antigua (Weisbord, 1979) and Brazil—São Paulo.

Habitat.—Found in the branchial chamber of *Callapa flammea*, *Scylarides* sp. (Weisbord, 1979) and *Libinia spinosa*. This species was found with *O. lowei* in the branchial chamber of *L. spinosa*.

Remarks.—*Octolasmis hoeki* presents a progressive reduction of the calcareous plates that cover the capitulum as it grows (Nilsson-Cantell, 1927; Stubbings, 1967), especially the scutum shape (Stubbings, 1967: 244, fig. 3). Three examined specimens had the largest size observed for this species. Their calcareous plates were very reduced, but the largest reduction was observed in a specimen with intermediate size (3.7 mm of capitulum height), which presents the opposite border of the umbo strongly concave (Fig. 3a). The largest specimen (4.2 mm) presents this border less concave (Fig. 3b). Therefore, the degree of reduction of calcareous plates with the growth does not seem to be uniform. *O. hoeki* is very similar to *O. antiquae* (Stebbing), sometimes being considered synonymous (Nilsson-Cantell, 1927). Stubbings (1967) gave many characteristics to differentiate these species. The dissected specimen had intermediate values of the numbers of articles on each ramus and the number of setae on each article: 9–12 articles (\bar{x} = 11) (Fig. 3c) on each ramus of cirrus II to VI (*O. hoeki*: 8–12, \bar{x} = 9–10; *O. antiquae*: 10–14, \bar{x} = 12) and 5–7, mostly 6, pairs of setae (Fig. 3d) at the anterior border of each article (*O. hoeki*: 3–4; *O. antiquae*: 6–8). The greater number of articles and setae observed, when compared with Stubbings (1967), are probably due the larger size of the specimens studied.

Octolasmis lowei (Darwin, 1851)

Figures 3e–h, 4

Synonymy.—Zevina, 1982: 59.

Description and Diagnosis.—Darwin, 1851: 128; Zevina, 1982: 59.

Examined Material.—ESPÍRITO SANTO. Guarapari, in branchial chamber of *Callinectes* spp., MZUSP 7624. Anchieta, in branchial chamber of *Callinectes* spp., MZUSP 7624. RIO DE JANEIRO. Rio de Janeiro, MZUSP 7626. SÃO PAULO. Off Ubatuba, 18–104 m, in branchial chamber of *Libinia*

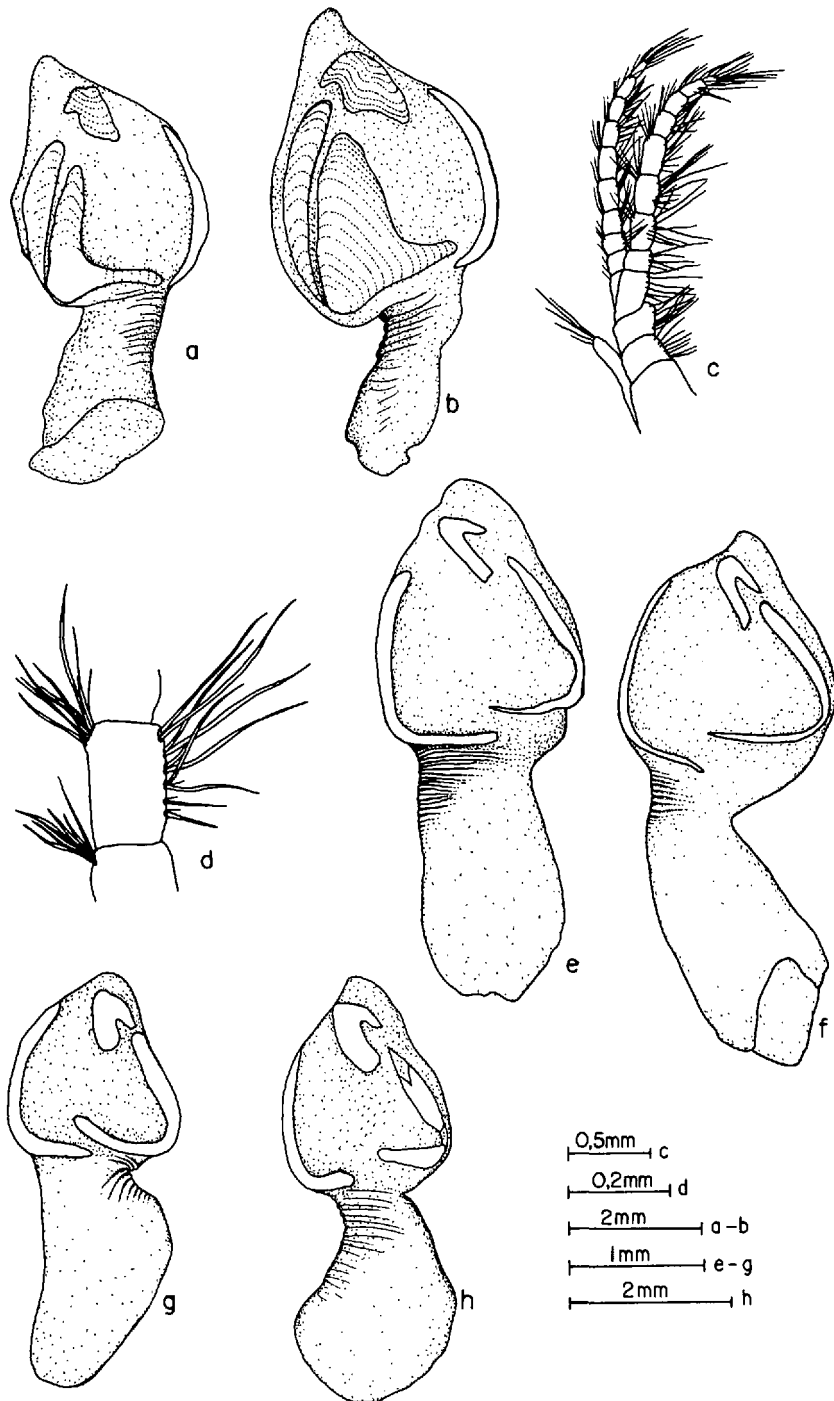


Figure 3. *Octolasmis hoeki* (Stebbing). MZUSP 8136: a-b—right lateral view of two specimens; c—cirrus VI; d—median articles of cirrus VI. *Octolasmis lowei* (Darwin). MZUSP 8095: e-g—left lateral view of three specimens. MZUSP 8135: h—the same from other specimen. Schematic setae distribution in c. Specimens e-f found in *Callinectes* sp., c in *Libinia spinosa* and d in *Portunus spinimanus*.

spinosa, *Portunus spinicarpus* (Stimpson), *Portunus spinimanus* (Latreille), *Hepatus pudibundus* and in an unidentified Majidae, MZUSP 8133, 8135, 8137–8138, 8140, 8142–8144. SANTA CATARINA. Florianópolis, in branchial chamber of *Libinia* sp. and *Callinectes* sp., MZUSP 7548, 8096. Paulo Lopes, in branchial chamber of *Libinia* sp., MZUSP 7558. Laguna, in branchial chamber of *Callinectes* sp., MZUSP 8109. RIO GRANDE DO SUL. Capão da Canoa, in branchial chamber of *Libinia* sp., MZUSP 7560. Tramandaí, in branchial chamber of *L. spinosa*, MZUSP 7561.

Geographic Distribution.—Cosmopolitan, found in tropical and temperate seas (Weisbord, 1979; Zevina, 1982). Brazil—Espírito Santo to Rio Grande do Sul (Weltner, 1897, as *Dichelaspis darwini*; Lacombe, 1977).

Habitat.—Found fixed in the branchial chamber of many decapod crustaceans. In the samples studied the specimens used as substrate were *Libinia spinosa*, *Portunus spinicarpus*, *P. spinimanus*, *Hepatus pudibundus*, *Callinectes* spp. and an unidentified Majidae. All are new hosts for this species. The *Libinia spinosa* hosts were intensively infested and rarely contained associated specimens of *O. hoeki*.

Remarks.—Darwin (1851) described *O. lowei* based on specimens from Madeira Island. The description reported primarily external characters. Afterwards, this species was recorded from many other localities, reflecting a cosmopolitan distribution (Nilsson-Cantell, 1927; Hiro, 1937; Brian and Dartvelle, 1954; Newman, 1960a; Stubbings, 1964). On the other hand, many new species of this genus were described based on external characters, sometimes mentioning internal ones. Because of the great variation of the external characters some authors (Nilsson-Cantell, 1927; Zevina, 1982) believed that most of these species were synonymous while others (Hiro, 1937; Newman, 1960a; 1960b; 1967; Weisbord, 1979) recognize that they represented a species complex difficult to distinguish.

The *O. lowei* complex comprises shallow water species represented in the western Atlantic by *O. muelleri* (Coker), *O. uncus* Pearse and *O. lowei* ss. The *O. lowei* specimens studied presented great variability of the external characters used as diagnostic; e.g., height/width ratio of capitulum, plates sizes, carina and tergum shapes (Fig. 3e–h).

Some specimens showed an incomplete calcification on the distal region of the scutum occludent ramus. In such case, two small projections of the calcified region of this ramus are visible (Fig. 3h). This variation is similar to the branching of the occludent ramus of *O. uncus*, as cited by Pearse (1951). The validity of the species is considered doubtful (Newman, 1960a). On the other hand, the differentiation of *O. muelleri* from *O. lowei* is difficult; some diagnostic characters cited by some authors (Coker, 1902; Pilsbry, 1953) are difficult to verify; others lack validity.

I observed the presence of six to eight pairs of setae at the anterior margin of each article (Fig. 4j) that invalidates the use of this character to differentiate this species. According to Coker (1902), *O. muelleri* would have eight pairs and *O. lowei* only six. I could not identify differential characters at the mouth appendages (Fig. 4b–f).

The observed scutum branch angulation (Fig. 3e–h) varied between 50° and 70°, while Coker (1902) cited a stable angle of 50° for *O. lowei* and an angle between 70° and 80° for *O. muelleri*. Despite the greater variation herein observed, this distinction supports its validity.

The labrum of *O. lowei* presented only one row of teeth (as figured by Newman, 1960a) and the penis had a tuft of setae just below the terminal languet (Newman, 1960b) and six longitudinal rows of setae along it. Specimens of *O. muelleri* have the labrum with two rows of teeth and the penis has a distal tuft of setae and



Figure 4. *Octolasmis lowei* (Darwin). MZUSP 8137: a—labrum; b—labral palp; c—d—mandible; e—first maxilla; f—second maxilla; g—two median articles of cirrus VI; h—distal region of penis. Specimen found in *Libinia spinosa*.

three rows of setae along it (Coker, 1902; Laguna, 1985). Therefore, the scutum branch angulation, the number of rows of teeth on the labrum, the number of rows of setae and the location of the tuft of setae on the penis are safer characters for the differentiation of *O. lowei* and *O. muelleri*. However, a detailed redescription based on specimens of *O. lowei* from Madeira Island is necessary to provide a safe diagnosis of this species.

Genus *Poecilasma* Darwin, 1851
Poecilasma inaequilaterale Pilsbry, 1907
Figure 5a–c

Synonymy. — Weisbord, 1979: 40.

Description and Diagnosis. — Pilsbry, 1907: 85.

Examined Material. — RIO GRANDE DO SUL. Off Tramandai, on *Geryon* sp., MZUSP 7630, MZB 460.

Geographic Distribution. — Western Atlantic: USA—Massachusetts to Virginia (Weisbord, 1979); Brazil—Rio Grande do Sul.

Habitat. — Attached to the carapaces of decapod crustaceans of genera *Homarus*, *Geryon* and *Cancer*, usually living at great depths (22 to 2,012 m) (Pilsbry, 1907; Zullo, 1979; Weisbord, 1979).

Remarks. — Capitulum of all specimens (>50) had asymmetric scutum (Fig. 5a, b). Scutum closer to the host had its surface flat or slightly concave, while the other was very convex. The denticles, laterals of greater teeth mandibles had a serrate appearance (Fig. 5c), as can be observed in species of *Heteralepas*. Pilsbry (1907) comments that *P. kaemferi* Darwin and *P. inaequilaterale* can be distinguished by the serrate mandible of the latter. The discovery of this species at Rio Grande do Sul and its previously known distribution show a disjunct distribution.

FAMILY HETERALEPADIDAE NILSSON-CANTELL, 1921

Genus *Heteralepas* Pilsbry, 1907
Heteralepas lankesteri (Gruvel, 1900)

Synonymy. — Weisbord, 1979: 11; Zevina, 1982: 119.

Description and Diagnosis. — Weisbord, 1979: 11.

Geographic Distribution. — Western Atlantic. Mona Channel, between Dominican Republic and Puerto Rico; Brazil—Pernambuco, off Cabo de São Vicente (Nilsson-Cantell, 1927).

Habitat. — Affixed to telegraph cables at great depths (92–275 m).

Remarks. — Absent in the studied samples.

Genus *Paralepas* Pilsbry, 1907
Paralepas martini new species
Figures 5d–g, 6

Examined Material. — Holotype. Dissected hermaphrodite, body preserved in alcohol 70°GL, MZUSP 8145, mouth and thoracic appendages mounted on lamina, MZUSP 8146 and 8147; capitulum height of 3.6 mm, greatest width of 3.0 mm and greatest breadth of 2.2 mm; off Cabo Orange, Amapá, Almirante Saldanha Oceanographic Ship coll 11/28/68, 99–103 m, unidentified substrate. Paratypes. Ten specimens, from type locality; two of these were dissected and the appendages mounted on lamina (MZUSP 8148; UFPB 3355 and with author).

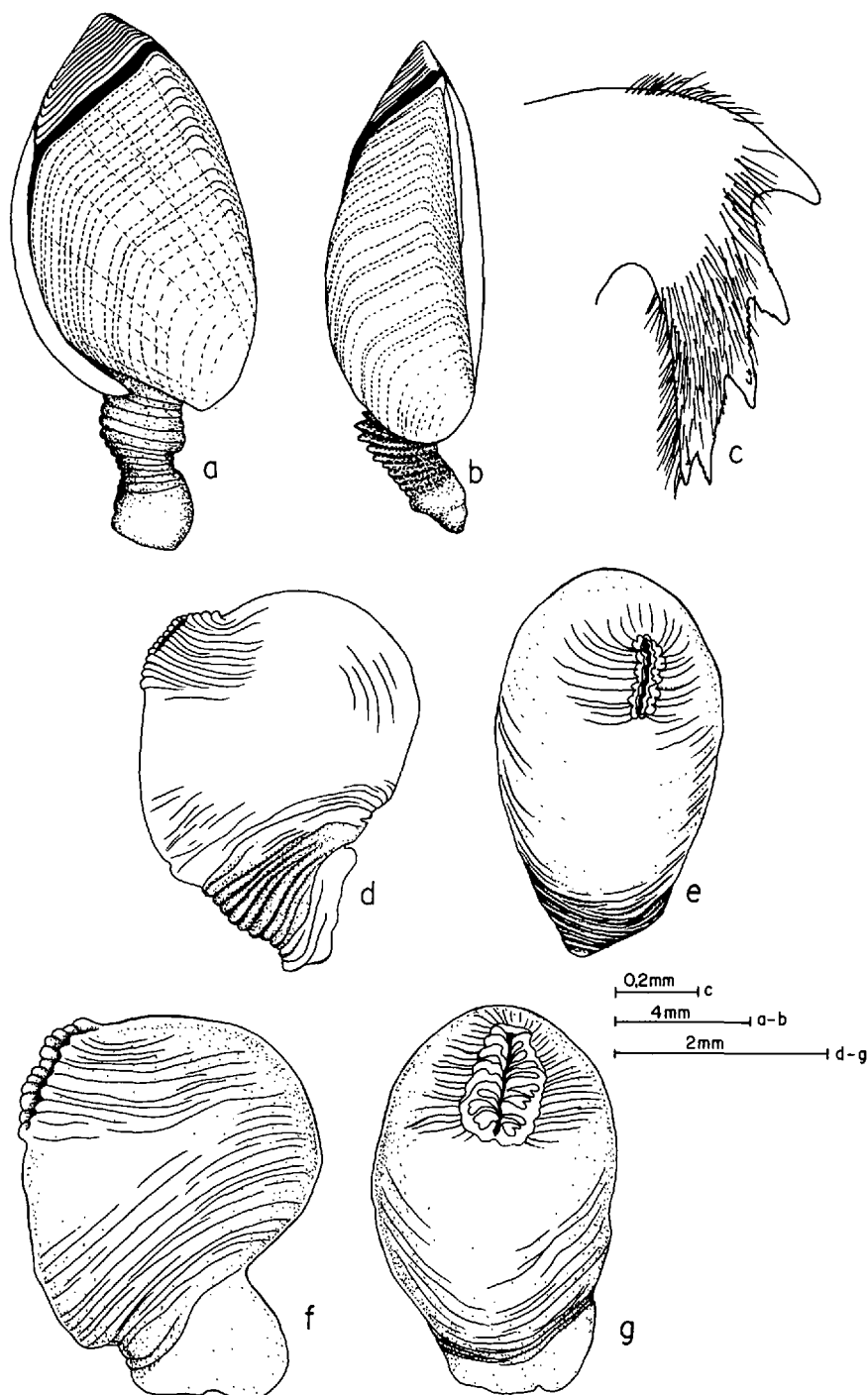


Figure 5. *Poecilasma inaequilaterale* Pilsbry. MZUSP 7630: a—left lateral view; b—rostral view of the same specimen; c—mandible. *Paralepas martini* n. sp. Holotype, MZUSP 7630: d—right lateral view; e—rostral view. Paratype, MZUSP 8148: f—right lateral view; g—rostral view of the same specimen.

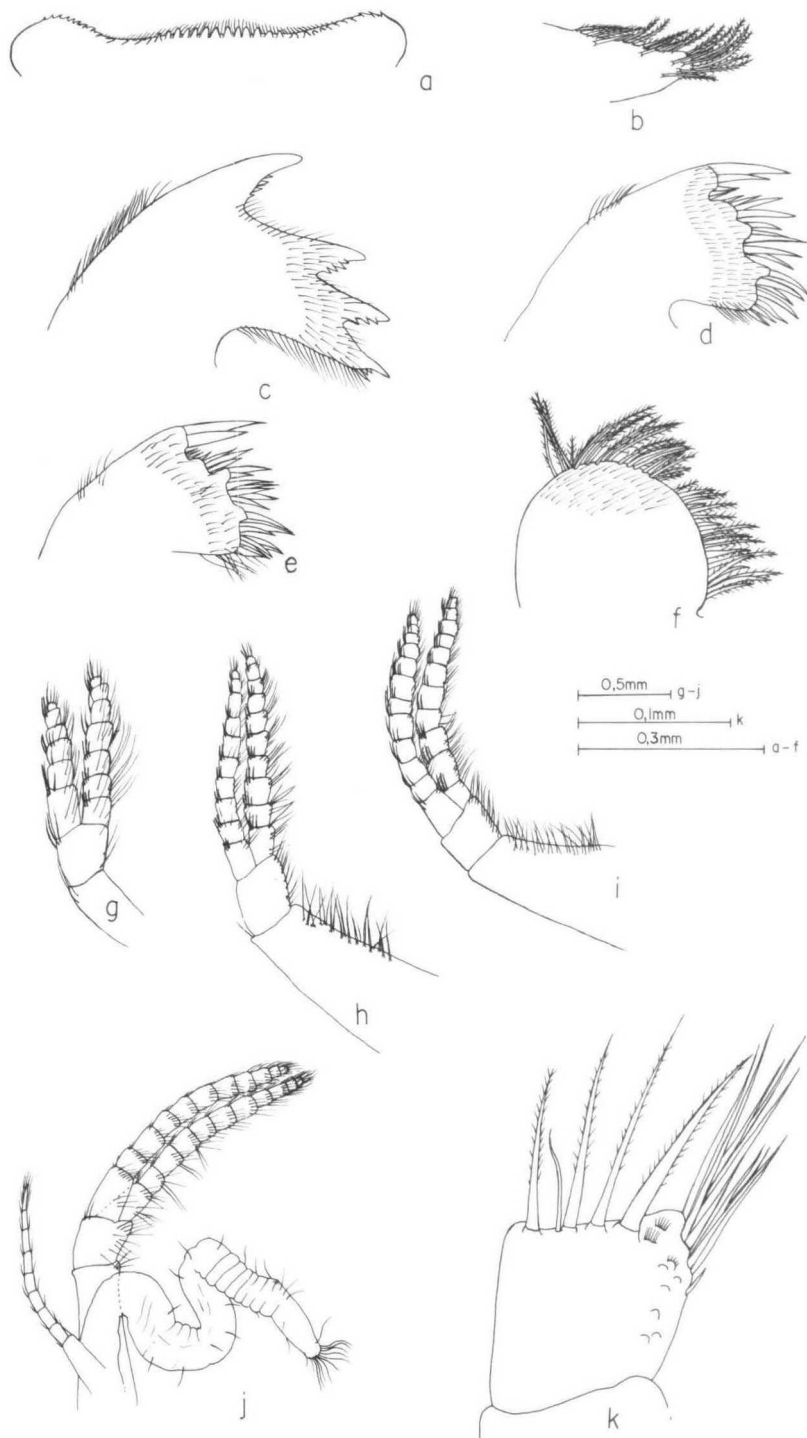


Figure 6. *Paralepas martini* n. sp. Holotype, MZUSP 8146: a—labrum; b—labral palp; c—mandible; d—e—first maxilla; f—second maxilla. MZUSP 8147: g—cirrus I; h—cirrus II; i—cirrus III; j—cirrus VI, caudal appendage and penis; k—external view of a median article of cirrus II. Schematic setae distribution and without details of complex setae in g–j.

Table 1. *Paralepas martini* new sp. Height (H) and width (W) of capitulum and height (P) of peduncle (measured on four paratypes). Value in mm

	H	W	P
a	2.7	3.0	1.0
b	2.4	2.9	1.0
c	2.5	2.6	0.9
d	2.5	2.8	0.7

Diagnosis.—Capitulum globose, wrinkled; carinal crest absent; tucked aperture; vestigial scutum absent; peduncle short and cylindrical. Labrum not bullate, with a row of teeth (30 to 37) on the margin. Mandible with four teeth with the inferior margin denticulated. First maxilla lobulated. Filamentary projections large on the posterior region of the fixation zone of the cirrus I base. Cirrus I with plumose setae on basal articles and pinnate setae on distal articles. Cirri II to VI with articles presenting thin pinnate setae on the anterior region and thick setae at the posterior angles. Caudal appendage larger than base of cirrus VI, nine-segmented, with setules at the distal margin of each article.

Description.—Capitulum (Fig. 5d–g) globose; with thick cuticle horizontally wrinkled on proximal half, arching to aperture on distal half; without carinal crest; carinal margin convex; rostral margin convex on the proximal half, straight on distal half; apico-frontal aperture tucked, small; vestigial scutum absent. Peduncle short, cylindrical, roughly $\frac{1}{3}$ of capitulum height (Table 1).

Labrum (Fig. 6a) straight, not bullated, border with 30 to 37 teeth; median region with straight, conical teeth; lateral region with teeth decreasing in size, arching to center; thin setae on all extensions. Labral palp (Fig. 6b) small, acuminate; thick, pinnate setae at superior and distal margins. Mandible (Fig. 6c) with four acute teeth, endowed with denticles at inferior margin, denticles sometimes absent at first tooth; last tooth placed at inferior angle; inferior margin with thin spinules; distal region spinulated. First maxilla (Fig. 6d, e) with cutting border lobulated, always with slit between first and second lobe; first lobe with two thick spinules; others with several median, thin spinules; inferior region of border more projected than superior. Second maxilla (Fig. 6f) rounded with pinnate setae on all superior and anterior margins.

Cirrus I (Fig. 6g) outstanding in comparison with other cirri, placed laterally to trophi; with subequal rami, short with same length of base; basal article with plumose setae; distal with pinnate setae; base with plumose setae at posterior angles; scales at posterior margins. Cirrus II (Fig. 6h–k) with equal rami; each article with tuft of thin, pinnate setae at anterior region, thick setae, usually pinnate, at outside distal margin and posterior angle, with multifid scales at antero-distal angle; simple scales at anterior region; base with pinnate setae and multifid scales at anterior margin; simple scales at posterior margin. Cirri III to VI (Fig. 6i, j) like cirrus II, except that thick setae are restricted to posterior angle of articles. Caudal appendage (Fig. 6j) with nine articles; larger than base of cirrus VI, with thin setules at distal margin of articles. Penis (Fig. 6j) ringed, with tuft of setae at distal region and setae distributed on all extensions. One large filamentary appendage is present at posterior region of fixation zone of cirrus I, with length equal to base of this cirrus. Table 2 gives counts of cirri articles from two specimens.

Etymology.—Specific name in honor of Dr. Martin Lindsey Christoffersen, friend and carcinologist at the Universidade Federal da Paraíba.

Table 2. *Paralepas martini* new sp. Number of articles of cirri (I–VI) and caudal appendages (A) from the holotype and one paratype

	I	II	III	IV	V	VI	A
Holotype	6/7	10/10	11/12	12/12	11/12	11/11	9
	6/7	10/10	11/13	10/11	11/11	11/12	9
Paratype	6/6	10/10	12/13	10/11	11/12	12/13	9
	6/7	11/11	12/12	12/13	11/12	11/11	9

Habitat.—Specimens collected at the continental shelf between depth of 99 and 103 m, on unidentified substrate. This genus is usually affixed to specimens of other taxa, but some species are free-living.

Remarks.—The genus *Paralepas* has 22 known species (Pilsbry, 1953; Zevina, 1982), occurring in all oceans. This new species is easily distinguished from 15 species of this genus by the presence of carinal crest or by the pair of vestigial scutum of these species. The other four species (*P. tuberosa*, *P. morula*, *P. pedunculata* and *P. hyugrosomi*) are distinct by the presence of an ornamentation or setae on their capitulum. *P. martini* n. sp. is similar only to three species: *P. globosa* Hiro, *P. distincta* Utinomi and *P. americana* Pilsbry.

P. globosa Hiro, from the Japanese region, found associated with *Astraea triumphans*, has the capitulum aperture frontally placed; the first maxilla with a smooth cutting border; and the caudal appendage with 14 articles (Hiro, 1936; Zevina, 1982).

P. distincta Utinomi, another species from Japan, associated with *Panulirus japonicus*, has the capitulum aperture projected on a protuberance; the first maxilla with a superior slit and a straight cutting border; the caudal appendage with 7–8 articles; and a penis with setae on protuberances (Utinomi, 1949; Zevina, 1982).

P. americana Pilsbry, from the Florida region, has the cirri with only thin, simple setae and the caudal appendage with three articles (Pilsbry, 1953). Despite the difficulties in differentiating these species by external appearance, their appendages differ significantly. *Paralepas martini* n. sp. is the first record of this genus from the Atlantic coast of South America.

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